within the following tolerances:

a. +/- 500 nanoseconds for UAT equipment with an internal UTC coupled time source,

b. +/- 500 nanoseconds for UAT equipment with an external UTC coupled time source.

Notes:

1. *This is required to support ADS-B range validation by a receiving application. This requirement sets the ultimate timing accuracy of the transmitted messages under the UTC Coupled condition. See Appendix I for a discussion of UAT Timing Considerations.*

2. *Referencing this measurement to the optimum sampling point is convenient since this is the point in time identified during the synchronization process.*

3. *There is no requirement to demonstrate this relationship when in the non-UTC Coupled condition.*

2.2.6.3   **Report Assembly on Transmission of Ownship ADS-B Message**

The transmitter **shall** issue a report reflecting each ADS-B Message transmission and explicitly identify the report as "ownship."

Reports **shall** contain all elements of the transmitted message payload with range, resolution and units of each payload field preserved.

Notes:

1. *This is to aid any application process that uses ADS-B Message propagation time to perform a validity check of received ADS-B Messages by providing a reference point for measured ranges.*

2. *Allows independent monitoring of the transmitted position.*

2.2.7   **UAT Transmitter Message Data Characteristics**

2.2.7.1   **UAT Transmitter Input Requirements**

This subparagraph contains requirements for access to the input elements required to compose the ADS-B Messages so their bits can be verified for their mapping into the structure of the transmitted message.

a. The UAT ADS-B Transmitting Subsystem **shall** accept the input data elements listed in Table 2-64 via an appropriate data input interface and use such data to establish the corresponding ADS-B Message contents.

b. Data elements indicated as "Optional," that have no input interface, **shall** always indicate the "data unavailable" condition, or be processed using the "data unavailable" procedures related to that element.